



Third West Weekly Report  
Shepherd, Michael

  
1241230 - R8 SDMS

to:

Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)'

05/09/2012 03:34 PM

Hide Details

From: "Shepherd, Michael" <Michael.Shepherd@rockymountainpower.net>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)'"  
<cbarnitz@utah.gov>

#### 7 Attachments



Weekly Reports 04-30 to 05-04.pdf Third West Weekly Log 2012-18.pdf 234883-1.pdf 234993-1.pdf 235070-1.pdf



235168-1.pdf 235272-1.pdf

Joyce & Craig,

Attached are the reports for the week of April 30, 2012.

All air monitoring results came back negative, except one chrysotile hit on Friday, May 4, 2012.

Please let me know if you have any questions.

Thanks,

Mike Shepherd  
Project Manager  
Rocky Mountain Power - Major Projects  
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# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 04/30/11

#### General

- NA Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
- NA Illness/Injury Report Form A
- NA Site-Specific Training Record Form C
- NA Hot Work Permit Form D
- NA Trench/Evacuation Permit Form E
- NA Combined Space Entry Permit Form F
- ☒ Exclusion zone operations are practiced as instructed.
- ☒ Decontamination unit is working properly.
- ☒ Workers are using decontamination unit as instructed.
- ☒ Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday

#### Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- ☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☒ Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
  - ☒ Field Sample Data Sheets (FSDS)
  - ☒ Logbook
  - ☒ On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☒ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- ☒ Electronically file sample reports into on-site database



## 3<sup>rd</sup> West Substation Site Project Safety Audit

Project: 3<sup>rd</sup> West Sub Station

Date: 04/30/12

Location: 3<sup>rd</sup> West, 1<sup>st</sup> South, SLC

Job Number: \_\_\_\_\_

Survey Conducted By: Justin Kargis

Title: \_\_\_\_\_

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			



Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	x			
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2 fire resistance barrier.			x	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			X	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Exclusion zone inactive today.

Newman backfilled and compacted over conduit trench along east side up to the gate. They did some leveling in the N.E corner near switch gear. This temporarily uncovered a small amount of native soil that they covered back up. CVE line crew continued working on structure steel and equipment between transformer 1 and switch gear. CVE electricians continued working on control cable layout and connections.

Wasatch electric continued pulling cable for Gadsby line inside the yard and on the west side of 4<sup>th</sup> west. Weather was partly cloudy, and warm with no precipitation. Light winds and temperatures around 70.

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 05/01/11

#### General

NA Work area Health and Safety Inspection

NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day

NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP

NA Site hazard and safety instruction for all first time employees, contractors or visitors

NA Complete Employee Meeting Record Form B (where applicable)

NA Document required Respirator Training completion with Form H

NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.

NA Confirm return of waste material manifest documents for each load with site manager.

NA Complete all CSHASP Forms (for applicable activities planned for that day)

NA Illness/Injury Report Form A

NA Site-Specific Training Record Form C

NA Hot Work Permit Form D

NA Trench/Evacuation Permit Form E

NA Combined Space Entry Permit Form F

☒ Exclusion zone operations are practiced as instructed.

☒ Decontamination unit is working properly.

☒ Workers are using decontamination unit as instructed.

☒ Workers use personal protective equipment properly.

☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.

Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.

☒ Review sign-in/sign-out log throughout and at the end of the workday.

☒ Secure the site at the end of the workday

#### Sampling

NA Soil Confirmation sampling for any newly excavated areas

☒ Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusion zone

NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal

NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- ☒ Electronically file photo files into the on-site database
- ☒ Complete Field Documentation
  - ☒ Field Sample Data Sheets (FSDS)
  - ☒ Logbook
  - ☒ On-site computer database
- ☒ Label each sample media with a unique number
- ☒ Seal sample(s) in zip lock plastic bags
- ☒ Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒ Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☒ Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
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## 3<sup>rd</sup> West Substation Site Project Safety Audit

Project: 3<sup>rd</sup> West Sub Station

Date: 05/01/12

Location: 3<sup>rd</sup> West, 1<sup>st</sup> South, SLC

Job Number: \_\_\_\_\_

Survey Conducted By: Justin Kargis

Title: \_\_\_\_\_

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
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1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

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1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.			x	
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
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1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.	x			
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1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	
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1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.	x			
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Comments:

Exclusion zone active once excavations began.

Newman washed out their end dump truck once in the morning and once in the afternoon. They added new fill material and began lifting the grade around the structure steel throughout the rest of the day. CVE line crew continued working on structure steel and connection between transformer and switch gear.

CVE electricians continued to work on control cable lay out and connections at circuit breakers.

Wasatch electric/South wire continued pulling cable for Gadsby line.

Overnight rains had soaked the surface soil but drainage appeared to be contained within the yard.

Weather was mild, mostly overcast and warm with light breezes. Temperatures around 70 and no precipitation.

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 05/02/11

#### General

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  - ☒ Exclusion zone operations are practiced as instructed.
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  - ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.  
Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
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1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Exclusion zone active once excavations began.

Newman washed out their end dump truck once in the morning and once in the afternoon. They excavated the retention envelope trench along the south side of the yard until native soil was reached and stopped. They continued backfilling around the structure and east side of yard.

CVE line crew continued buss work connection from transformer to switch gear in bay 1.

CVE electricians continued working on control cable connections at breakers.

Wasatch electric continued pulling cable to risers in bay 1.

Jones drilling was on site to drill ground rod holes down to existing concrete foundation at about 10 feet under structure steel. This drilling penetrated native soil under the concrete floor and brought small amounts to the surface.

Weather was war, and mostly sunny with light breezes. Temperatures in the mid 70s and no precipitation.

# 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

## HEALTH SAFETY MANAGER (HSM)

### DAILY CHECKLIST

DATE: 5/3/12

#### General

- ☒ Work area Health and Safety Inspection
- NA Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
- NA Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
- NA Site hazard and safety instruction for all first time employees, contractors or visitors
- NA Complete Employee Meeting Record Form B (where applicable)
- NA Document required Respirator Training completion with Form H
- NA Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
- NA Confirm return of waste material manifest documents for each load with site manager.
- NA Complete all CSHASP Forms (for applicable activities planned for that day)
  - NA Illness/Injury Report Form A
  - NA Site-Specific Training Record Form C
  - NA Hot Work Permit Form D
  - NA Trench/Evacuation Permit Form E
  - NA Combined Space Entry Permit Form F
  - NA Exclusion zone operations are practiced as instructed.
- NA Decontamination unit is working properly.
- NA Workers are using decontamination unit as instructed.
- NA Workers use personal protective equipment properly.
- ☒ Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
- ☒ Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
- ☒ Review sign-in/sign-out log throughout and at the end of the workday.
- ☒ Secure the site at the end of the workday; PacifiCorp Employee

#### Sampling

- NA Soil Confirmation sampling for any newly excavated areas
- NA Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
- NA Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
- NA Digitally photograph each sample location and at any place field sampling personnel determined necessary

- NA      Electronically file photo files into the on-site database
- ☒      Complete Field Documentation
  - ☒      Field Sample Data Sheets (FSDS)
  - ☒      Logbook
- NA      On-site computer database
- ☒      Label each sample media with a unique number
- ☒      Seal sample(s) in zip lock plastic bags
- ☒      Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
- ☒      Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
- ☒      Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees
- NA      Electronically file sample reports into on-site database



## 3<sup>rd</sup> West Substation Site Project Safety Audit

**Project:** 3rd West Sub Station  
**Location:** 3rd West, 1st South, SLC  
**Survey Conducted By:** Jon Craig

**Date:** 5/3/12  
**Job Number:** \_\_\_\_\_  
**Title:** IH Technician

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x	
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

<i>Standard</i>	<i>Title</i>	In Compliance	Out of Compliance	N/A	<i>Corrective Action Taken and Date</i>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.	x			
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	x			
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x			
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (4)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x			
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.	x			
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a 1/2" fire resistance barrier.	x			

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			x	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b) (2)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	



Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x			

**Comments:**

CVE installed and wired up yard lights; drove 4 rods.

Newman excavated along the South wall in an expanded exclusion zone for about 2 hours. The temporary expanded exclusion zone was moved back as soon as excavation was complete. Also filled 2 dump trucks with contaminated soil and hauled it off-site.

Emerson continued with their equipment checks.

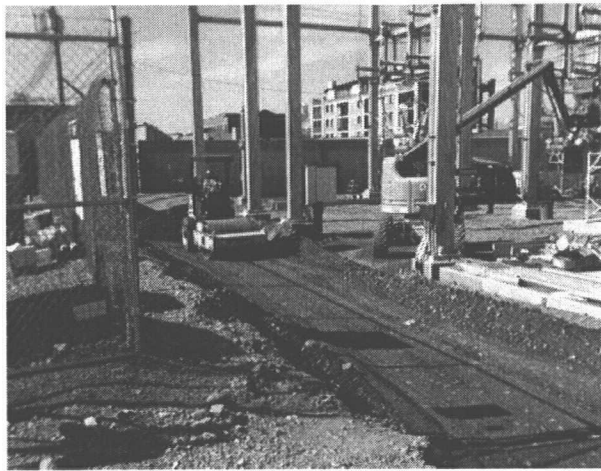


PHOTO 1



PHOTO 2

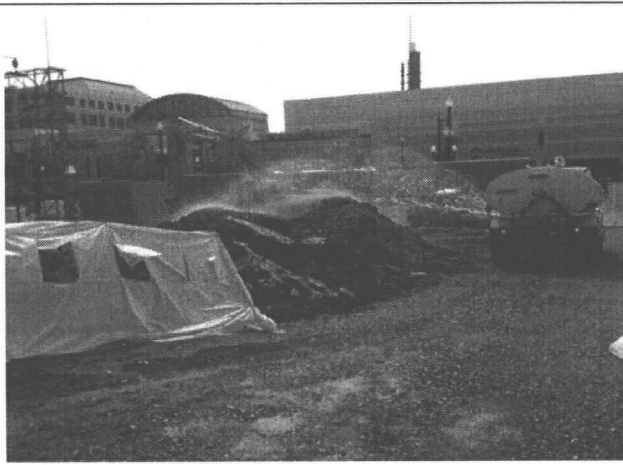


PHOTO 3



PHOTO 4

## **R & REnvironmental, Inc.**

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:  
DCR

DRAWN BY:

JMK

DATE

04/30/12

FILE:

## SITE PHOTOGRAPHS



3<sup>rd</sup> West Substation  
"2011 Upgrade Project"  
Salt Lake City, Utah



PHOTO 1



PHOTO 2

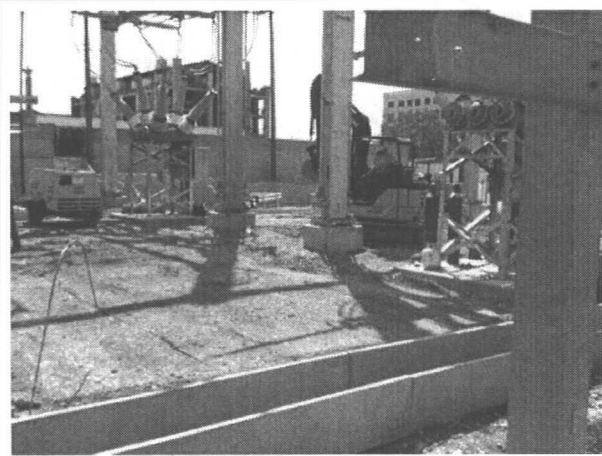


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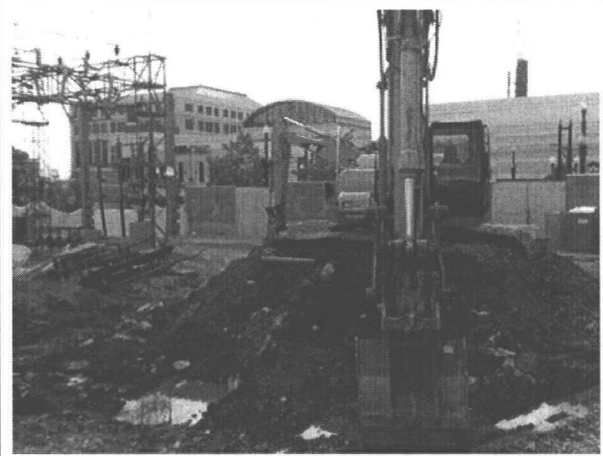


PHOTO 4

## **R & R** Environmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:  
DCR

DRAWN BY:  
JMK

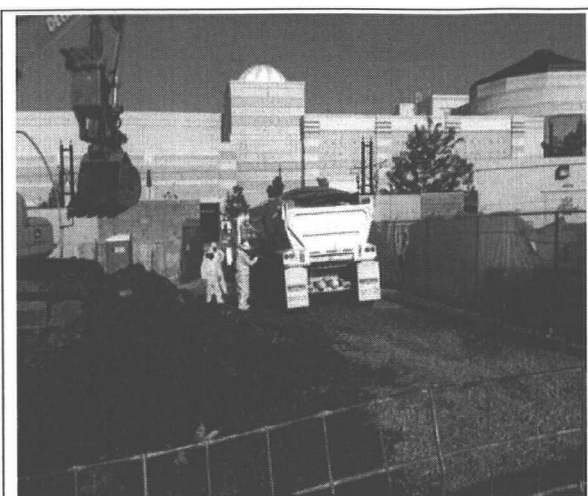
DATE  
05/01/12

FILE:

## SITE PHOTOGRAPHS



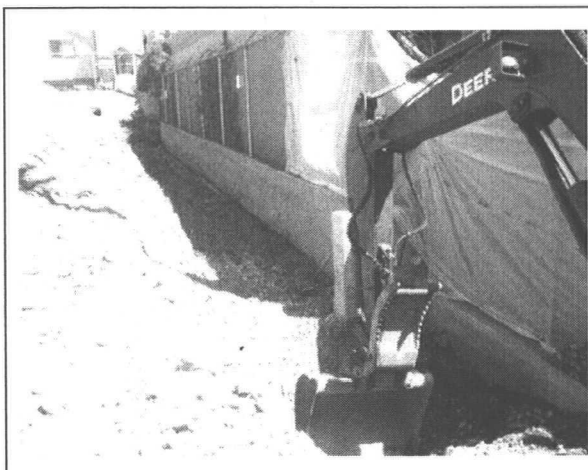
3<sup>rd</sup> West Substation  
"2011 Upgrade Project"  
Salt Lake City, Utah



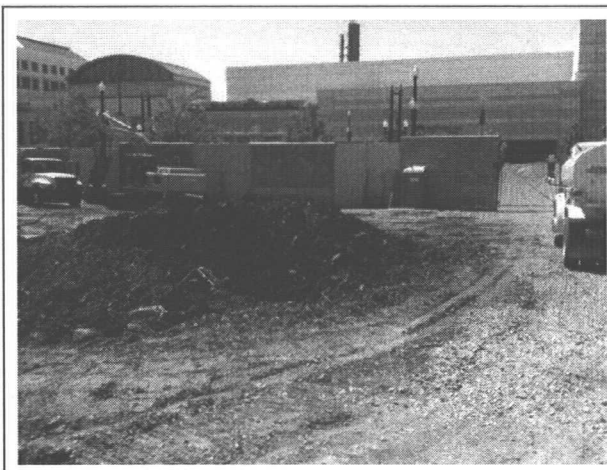
**PHOTO 1**



**PHOTO 2**



**PHOTO 3**



**PHOTO 4**

## **R & REnvironmental, Inc.**

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:

DCR

DRAWN BY:

JMK

DATE

05/02/12

FILE:

## **SITE PHOTOGRAPHS**



**3<sup>rd</sup> West Substation  
"2011 Upgrade Project"  
Salt Lake City, Utah**

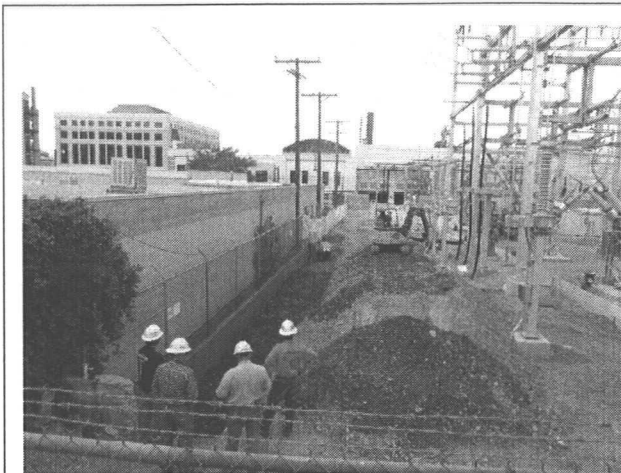


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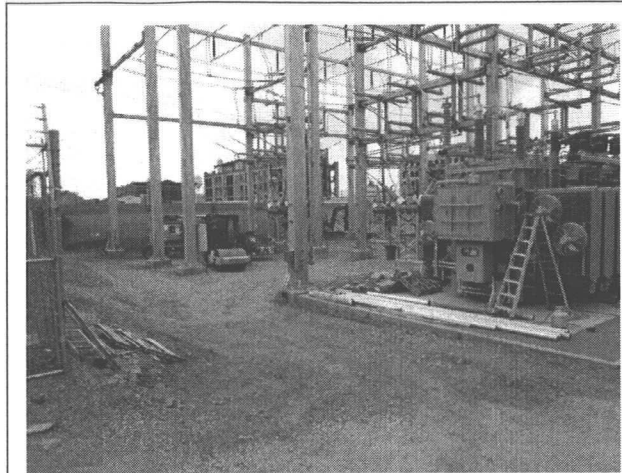


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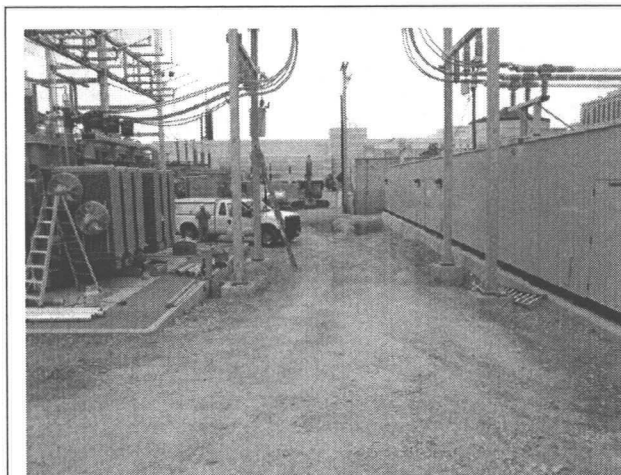


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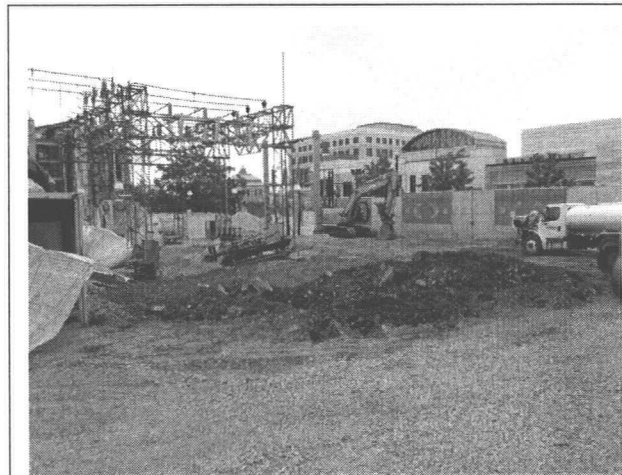


PHOTO 4

## **R & R Environmental, Inc.**

47 West 9000 South, Suite #2, Sandy, Utah 84070  
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:  
DCR

CREATED BY:  
JRWC

DATE:  
5/3/2012

FILE:

## SITE PHOTOGRAPHS



**3<sup>rd</sup> West Substation**  
**"2011 Upgrade Project"**  
**Salt Lake City, Utah**



# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Monday, April 30, 2012

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 6:45

Crew Stop Time: 17:20 Tot Hrs mns: 10:35

FCR Start Time: 6:36

FCR Stop Time: 17:40 Tot Hrs mns: 11:04

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 47 degrees in AM, 77 degrees in PM

## DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and is piping CBs 134 and 146, pulling station service wire (350 MCM) and completing wiring at xfmr #1 and CBs 132 and 144. CVE Line Crew is assisting the electricians and started jumpers from xfmr #1 to the switchgear. They hung the station service transformer for xfmr #1. Newman backfilled the north half of the east duct bank between vaults 7/8 and 9/10 and then backfilled around vaults 7/8 to provide access for CVE line crew to install jumpers from xfmr #1 to the switchgear. Some removal of material around vaults 7 and 8 will be necessary as the material on the west side was just pushed in to facilitate the line crew getting in to do the jumpers between xfmr #1 and the switchgear. Southwire/Wasatch plans to set up at Gadsby termination pole with the new reel and set up the puller in the substation. They plan on running a hard line from the sub to the termination pole, pulling to the vault, then resetting the reel at the vault and pulling into the sub. This will alleviate one repositioning of the puller. The first pull from the tenn pole to the vault on 400 West was completed at 2:05 PM. The pull from the vault to the substation was completed by 4:45 PM and then they had to clean up and move the reel trailer. Emerson was not on site today, but in my previous report I indicated that he would be back on site today. That was in error, because there wasn't anything new for him to test until CVE electricians got some additional wire pulled and terminated. As of now, Doug (Emerson) is planning on being back here on Thursday. CVE Line Crew = 4, CVE Fab Crew = 0, CVE Electrical Crew = 3, Newman = 5, Emerson = 0, Pedersen = 1, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Dave Hurst 0636

Dispatcher logout, name and time:

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:

4/21 - identified a dimension issue on the PASCOR ground switch control arm. (22' vs 25')	Received extensions and couplers and installed.

## DELAYS OR LOST TIME ENCOUNTERED:

--

## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool-trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:

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**Rocky Mountain Power**

A division of PacifiCorp

Russ Johnson

Field Construction Representative

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Tuesday, May 1, 2012

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 17:20

Tot Hrs mns: 10:30

FCR Start Time: 6:44

FCR Stop Time: 17:25

Tot Hrs mns: 10:41

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 46 degrees in AM, 75 degrees in PM

## DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and is pulling wire and terminating CBs 134 and 146. CVE Line Crew is working on the jumpers on the structures between xfmr #1 and the switchgear. Roger Fuerst has approved the use of the 20" insulator as it gives us the elevation we need for the jumpers to come off the switchgear in a horizontal position. Newman loaded out their end dump this morning and this afternoon with material to Clean Harbors. They have also been leveling the area under the 138 kV bus in preparation for placement of yard rock. Southwire/Wasatch pulled in the hardline from the sub to the termination pole for the final Gadsby conductor. They pulled the section from the term pole to the vault by 1:45 PM and the section from the vault to the substation by 3:50 PM. Wasatch still has a couple of conduits on the Jordan line to proof, so we probably won't see cable coming into the sub until late tomorrow afternoon. Emerson was not on site today, and now indicates they will arrive on Thursday after CVE gets the last two breakers wired up completely. CVE Line Crew = 4, CVE Fab Crew = 0, CVE Electrical Crew = 3, Newman = 5, Emerson = 0, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Jim Bowman 0644

Dispatcher logout name and time: Kim Batt 1724

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:

4/21 - Identified a dimension issue on the PASCOR ground switch control arm. (22' vs 25')	Received extensions and couplers and installed.

## DELAYS OR LOST TIME ENCOUNTERED:

--

## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:


**Rocky Mountain Power**

Russ Johnson

Field Construction Representative

A division of PacifiCorp

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Wednesday, May 2, 2012

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 18:00 Tot Hrs mns: 11:10

FCR Start Time: 6:39

FCR Stop Time: 18:05 Tot Hrs mns: 11:26

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 50 degrees in AM, 75 degrees in PM

## DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew, one person, worked eight hours and is installing and wiring to the west bus differential box. CVE Line Crew is working on the jumpers on the structures between xfmr #1 and the switchgear, wiring and grounding the station service transfonner for xfmr #1, and piercing the switches after they were examined by Jack Bottino, Owen Wahlstrom, and Luke Hoffman. Newman loaded out their end dump this morning and this afternoon with material to Clean Harbors. They have also been leveling the area under the 138 kV bus in preparation for placement of yard rock, and digging out along the south concrete retaining wall to start installing the fabric wrapped ABC material (retaining wall). Southwire/Wasatch is pulling mule tape into the Jordan conduits (A phase only) and will be pulling a test piece of wire into one of the conduits running from the term pole to the vault on 400 West. The madril has been hanging up there and they want to try to determine if there is an issue with the conduit. Emerson was not on site today, but will be on site on Thursday, May 3rd. Jones Excavating arrived late in the PM and drilled four holes for ground rods. They left their drill rig on site and will return to drill two more holes after Newman completes the retaining wall. CVE Line Crew = 3, CVE Fab Crew = 0, CVE Electrical Crew = 1, Newman = 4, Emerson = 0, Jones = 2, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time:	Bany Nielson 0639
Dispatcher logout, name and time:	Blake Spence 1806

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:


## DELAYS OR LOST TIME ENCOUNTERED:

--

## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:

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**Rocky Mountain Power**

A division of PacifiCorp

Russ Johnson

Field Construction Representative



# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE: Thursday, May 3, 2012

PO & Work Order NO.: 3000078050 / 10035803

MAIN CONTRACTOR: Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 17:32

Tot Hrs mns: 10:42

FCR Start Time: 6:39

FCR Stop Time: 17:35

Tot Hrs mns: 10:56

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 54 degrees in AM, 75 degrees in PM

**DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)**

R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and hung and wired yard lights. CVE Line Crew is not on site. CVE Utility Crew (3 people) is working on driving the four ground rods, connecting to the grid and filling the holes with bentonite. Newman loaded out their end dump this morning and twice in the PM (total of three loads) with material to Clean Harbors. Southwire/Wasatch pulled mule tape into the Jordan conduits, pulled a test piece of wire into one of the conduits running from the term pole to the vault on 400 West and encountered some interference to point of scarring the cable. They plan on swabbing both directions on the conduit, painting the cable and repulling the cable on Friday morning. Emerson is on site today and completed the two circuit breakers. Emerson will just need to complete the testing of the grounding, the Jordan CCVTs when they return, probably on Friday, May 11. CVE Line Crew = 0, CVE Fab Crew = 0, CVE Electrical Crew = 3, CVE Utility Crew = 3, Newman = 4, Emerson = 2, R&R = 1, Wilding = 1.

**IF WORKING IN ENERGIZED SUBSTATION:**

Dispatcher login, name and time: Jim Bowman 0639

Dispatcher logout, name and time: Kim Batt 1735

**DISCREPANCIES:**

**IMMEDIATE CORRECTIVE ACTION TAKEN:**


**DELAYS OR LOST TIME ENCOUNTERED:**

--

**EQUIPMENT (working, delivered, idle):**

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

**OSHA Recordable Safety Incidents:**

Reported by:

Time:


**Rocky Mountain Power**

Russ Johnson

Field Construction Representative

A division of PacifiCorp

# PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME: Third West Sub - Rebuild

DATE : Friday, May 4, 2012

PO & Work Order NO. : 3000078050 / 10035803

MAIN CONTRACTOR : Cache Valley Electric

Crew Start Time: 6:50

Crew Stop Time: 15:30

Tot Hrs mns: 8:40

FCR Start Time: 6:36

FCR Stop Time: 15:45

Tot Hrs mns: 9:09

Use military time format 00:00

WEATHER CONDITIONS: Sunny - 53 degrees in AM, 75 degrees in PM

## DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.)

R&R set four monitors. CVE Fab Crew not on site. CVE Electrical Crew worked eight hours and is piping Jordan CCVTs, hanging yard lights and digging conduit trench for control conduits to xfmr #2. CVE Line Crew is not on site. CVE Utility Crew (3 people) is on site and is doing housekeeping. Newman is placing the geotech wall (east 85') and started on the next 40' section. John Mancini came by and determined that it will not be necessary to remove the gate apron and duct bank that are middle of the 40' section. Southwire/Wasatch, after successfully pulling the dummy cable through the conduit for C phase on the Jordan line, rigged up the hardline and pulled cable from the Jordan term pole to the vault on 400 West and then pulled from the vault into the substation. Wasatch will be gone for one week. Southwire will begin on Monday, May 7 to install the terminations and splices for the Gadsby circuit. CVE Une Crew = 0, CVE Fab Crew = 0, CVE Electrical Crew = 3, CVE Utility Crew = 3, Newman = 4, R&R = 1, Wilding = 1.

## IF WORKING IN ENERGIZED SUBSTATION:

Dispatcher login, name and time: Jim Bowman 0636

Dispatcher logout, name and time: Jim Bowman 1548

## DISCREPANCIES:

## IMMEDIATE CORRECTIVE ACTION TAKEN:


## DELAYS OR LOST TIME ENCOUNTERED:

--

## EQUIPMENT (working, delivered, idle):

CVE fab crew: Portable toilet (3), forklift, 1 dumpster, office trailer, conex, exclusion zone conex, (2), tool trailer, crew truck. CVE Line Crew: Pickup (2), JLG (2), tool trailer. Newman: trachoe (2), loader, bobcat, mini-ex, water truck, compactor, backhoe.

## OSHA Recordable Safety Incidents:

Reported by:

Time:

--	--	--

**Rocky Mountain Power**

A division of PacifiCorp

Russ Johnson

Field Construction Representative



May 2, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 234883-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub - RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 234883-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jeanne Spencer".

Jeanne Spencer  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 234883-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: 3rd West Sub - RMP  
 Date Samples Received: May 1, 2012  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: May 2, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-043012 W	EM 879323	0.0900	938	ND	0.0046	BAS	BAS
3W-043012 N	EM 879324	0.0900	938	ND	0.0046	BAS	BAS
3W-043012 E	EM 879325	0.0900	939	ND	0.0046	BAS	BAS
3W-043012 S	EM 879326	0.0900	939	ND	0.0046	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Digitally signed by  
 Mark E. Blum  
 DN: cn = Mark  
 Blum, c = US  
 o = Reservoirs  
 Environmental  
 Inc.  
 Date: 2012.05.02  
 13:22:23 -0800

DATA QA

Due Date: 5-2-12  
Due Time: 5:00a



# Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph: 303 964-1986 • Fax 303 477-4275 • Toll Free 866 RES-ENV

Pager: 303-966-2693

RES 234883

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

Company: <u>REIL Environmental</u>	Company:	Contact: <u>Dave Roskelley</u>	Contact: <u>Justin Kangis</u>
Address: <u>47 W 9000S #2</u> <u>@ Sandy UT 84070</u>	Address:	Phone:	Phone:
		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager: <u>801 828-5219</u>
Project Number and/or P.O. #		Final Data Deliverable Email Address: <u>dave@rrenviro.com</u>	
Project Description/Location: <u>304 West Sub - RMD</u>			

ASBESTOS LABORATORY HOURS: Weekdays: 7a-11p		REQUESTED ANALYSIS										VALUO MATRIX CODES				LAB NOTES:								
PLM / PCM / TEM	<u>RUSH (Same Day)</u> <u>X</u> <u>PRIORITY (Next Day)</u> <u>STANDARD</u> (Rush PCM = 2hr, TEM = 6hr.)												Air = A	Bulk = B										
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm													Dust = D	Paint = P										
Metal(s) / Dust	<u>RUSH</u> <u>24 hr.</u> <u>3-5 Day</u>												Soil = S	Wipe = W										
RCRA 8 / Metals & Welding	<u>RUSH</u> <u>5 day</u> <u>10 day</u>												Swab = SW	F = Food										
Fume Scan / TCLP													Drinking Water = DW	Waste Water = WW										
Organics	<u>24 hr.</u> <u>3 day</u> <u>5 Day</u>												O = Other											
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm													**ASTM E1792 approved wipe media only**											
E.coli O157:H7, Coliforms, S.aureus	<u>24 hr.</u> <u>2 Day</u> <u>3-5 Day</u>																							
Salmonella, Listeria, E.coli, APC, Y & M	<u>48 Hr.</u> <u>3-5 Day</u>																							
Mold	<u>RUSH</u> <u>24 Hr</u> <u>48 Hr</u> <u>3 Day</u> <u>5 Day</u>																							
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																								
Special Instructions:																								
Client sample ID number (Sample ID's must be unique)		PLM - Short report, Long report, Point Count	TEM - AHERA Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-wac, ISO-indirect Preps	PCM - 7400A, 7400B, OSMA	DUST - Total, Respirable	METALS - Analyte(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh:mm a/p	ENI Number (Laboratory Use Only)
1 3W-043012 W			X																938	A		4/30/12		275823
2 3W-043012 N																			938					24
3 3W-043012 E																			939					25
4 3W-043012 S																			939					26
5																								
6																								
7																								
8																								
9																								
10																								

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REIL will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may incur a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Rel Ex	Date/Time: <u>4/30/12</u>	Sample Condition: On Ice	Sealed	Intact
Laboratory Use Only			Temp. (F°)	Yes / No	Yes / No
Received By: <u>[Signature]</u>	Date/Time: <u>5/2/12</u>	Carrier: <u>Fed Ex</u>			
Results:	Contact	Phone Email Fax	Date	Time	Initials
	Contact	Phone Email Fax	Date	Time	Initials

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

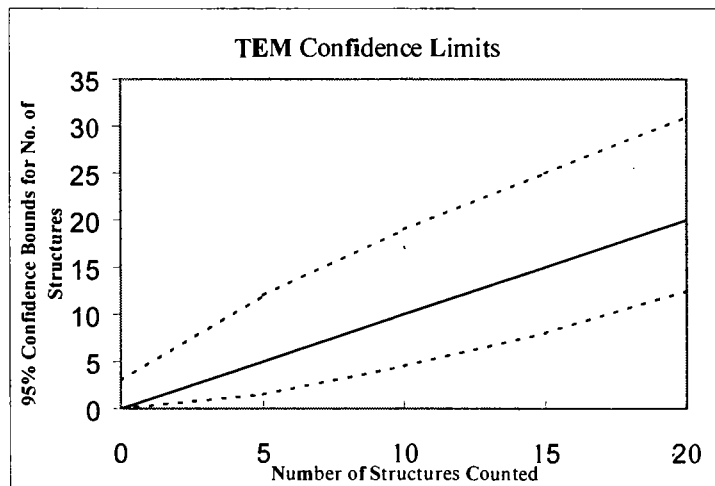
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeanne S. Orr  
Nathan DelHiero  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	ReR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	938
Date received by lab	5/1/12
Lab Job Number:	234883
Lab Sample Number:	879823

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	5/2/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F2-3	ND												
	E2-3	ND												
	C2-3	ND												
	B2-3	ND												
	E3-3	ND												
B	F2-3	ND												
	E2-3	ND												
	C2-3	ND												
	E4-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Tyoe	

Client :	Ror
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	438
Date received by lab	5/1/12
Lab Job Number:	234883
Lab Sample Number:	879824

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	5/2/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Alt
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H2-6	ND												
	G2-6	ND					Pup A	70% intact	5% debris					
	F2-6	ND					Pup B	80% intact	5% debris					
	C2-6	ND												
	B2-6	ND												
B	H2-3	ND												
	G2-3	ND												
	F2-3	ND												
	E2-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material



Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	<u>RRR</u>
Sample Type (A=Air, D=Dust):	<u>A</u>
Air volume (L) or dust area (cm <sup>2</sup> )	<u>939</u>
Date received by lab	<u>5/1/12</u>
Lab Job Number:	<u>234883</u>
Lab Sample Number:	<u>879825</u>

Analyzed by	<u>JB</u>
Analysis date	<u>5/2/12</u>
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	<u>D</u>
Counting rules (ISO, AHERA, ASTM)	<u>All</u>
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K2-6	ND												
	H2-6	ND												
	G2-6	ND												
	F2-6	ND												
	E2-6	ND												
B	H2-3	ND												
	G2-3	ND												
	F2-3	ND												
	E2-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <u>N</u> S
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	<u>Ror</u>
Sample Type (A=Air, D=Dust):	<u>A</u>
Air volume (L) or dust area (cm <sup>2</sup> )	<u>939</u>
Data received by lab	<u>5/1/12</u>
Lab Job Number:	<u>234883</u>
Lab Sample Number:	<u>879826</u>

Analyzed by	<u>JB</u>
Analysis date	<u>5/2/12</u>
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	<u>D</u>
Counting rules (ISO, AHERA, ASTM)	<u>All</u>
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K2-6	ND												
	H2-6	ND												
	G2-6	ND												
	F2-6	ND												
	E2-6	ND												
B	K2-3	ND												
	H2-3	ND												
	G2-3	ND												
	F2-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



May 3, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 234993-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub - RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 234993-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Spencer", is written over a horizontal line.

Jeanne Spencer  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101886-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 234993-1  
Client: R & R Environmental  
Client Project Number / P.O.: None Given  
Client Project Description: 3rd West Sub - RMP  
Date Samples Received: May 2, 2012  
Analysis Type: TEM, AHERA  
Turnaround: 24 Hour  
Date Samples Analyzed: May 3, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-050112 W	EM 879528	0.0900	907	ND	0.0047	BAS	BAS
3W-050112 N	EM 879529	0.0900	907	ND	0.0047	BAS	BAS
3W-050112 E	EM 879530	0.0900	873	ND	0.0049	BAS	BAS
3W-050112 S	EM 879531	0.0900	905	ND	0.0047	BAS	BAS

NA = Not Analyzed  
ND = None Detected  
BAS = Below Analytical Sensitivity  
Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
Filter Diameter = 25 mm  
Effective Filter Area = 385 sq mm

*g*  
Dated:  
Initiated By: Gm  
Checked:  
Date: 5/3/12  
T:\QAQC\Lab  
RMP

DATA QA

Due Date: 5.3.12  
Due Time: 5:30pm

**REI LAB** **Reservoirs Environmental, Inc.**  
5801 Logan St. Denver, CO 80216 • Ph: 303 594-2585 • Fax 303 477-4275 • Toll Free 866 REI-ENV  
Pager: 303 594-2586

RES 234993

INVOICE TO: (IF DIFFERENT)

CONTACT INFORMATION:

Company: <u>R&amp;R Environmental</u>	Company:	Contact: <u>Dave Koskelley</u>	Contact:
Address: <u>47 W 9000 S #2</u>	Address:	Phone:	Phone:
<u>Sandy UT. 84070</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Date Deliverable Email Address:	
Project Description/Location: <u>3rd West Sub - RMP</u>		<u>dave@renewi.com</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 9am - 7pm		REQUESTED ANALYSIS												VALID MATRIX CODES		LAB NOTES:							
PLM / PCM (TEM)	<u>RUSH</u> (Same Day) <u>PRIORITY</u> (Next Day) <u>STANDARD</u> (Rush PCM = 2hr, TEM = 6hr.)	PLM - Short report, Long report, Point Count	TEM - AHERA Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analysis(s)	RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	Salmonella +/-	E.coli O157:H7 +/-	Listeria +/-	Aerobic Plate Count +/- or Quantification	E.coli +/- or Quantification	Coliforms +/- or Quantification	S.aureus +/- or Quantification	Y & M +/- or Quantification	Mold +/-, Identification, Quantification	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected h:mm alp	EM Number (Laboratory Use Only)
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																							
Metal(s) / Dust	<u>RUSH</u> 24 hr. 3-5 Day																						
RCRA 8 / Metals & Welding	<u>RUSH</u> 5 day 10 day																						
Fume Scan / TCLP																							
Organics	24 hr. 3 day 5 Day																						
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm																							
E.coli O157:H7, Coliforms, S.aureus	24 hr. 2 Day 3-5 Day																						
Salmonella, Listeria, E.coli, APC, Y & M	48 Hr. 3-5 Day																						
Mold	<u>RUSH</u> 24 Hr 48 Hr 3 Day 5 Day																						
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																							
Special Instructions:																							
Client sample ID number (Sample ID's must be unique)																							
1 <u>3W-050112 W</u>			X															907	A	5/01/12			874528
2 <u>3W-050112 N</u>																		907					29
3 <u>3W-050112 E</u>																		873					30
4 <u>3W-050112 S</u>																		905					31
5																							
6																							
7																							
8																							
9																							
10																							

Number of samples received: 4 (Additional samples shall be listed on attached long form.)  
NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>Justin Farris</u>	Date/Time: <u>5/01/12</u>	Sample Condition: On Ice Sealed Intact
Laboratory Use Only	Carrier: <u>FedEx</u>	Temp. (F°) Yes / No Yes / No <u>Yes</u> / No
Received By: <u>Justin Farris</u>	Date/Time: <u>5.2.12</u>	
Results:	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials
	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

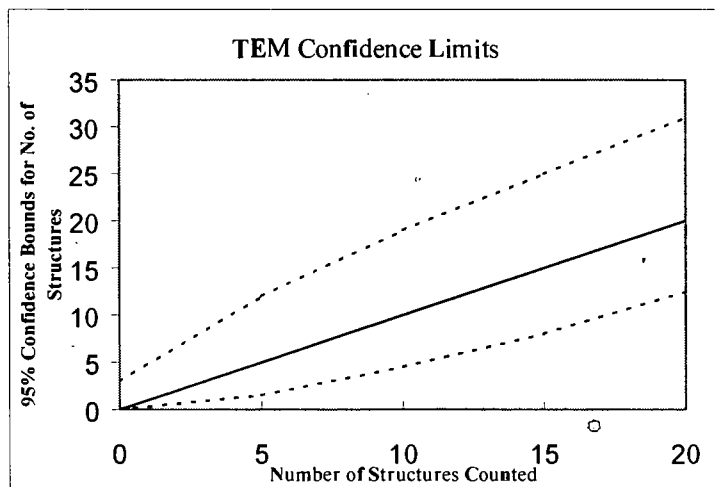
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeanne S. Orr  
Nathan DelHierro  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N(8)
Voltage (KV)	100 KV
Magnification	<del>30KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Tyue	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	907
Date received by lab	5/2/12
Lab Job Number:	234993
Lab Sample Number:	879528

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	VR
Analysis date	5/2/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-4	ND												
	E4-4	ND					Prep A	70% intact			5/2 debris			
	C4-4	ND					Prep B - A				5/2/12			
	G6-1	ND												
	F6-1	ND												
B	K5-1	ND												
	H5-1	ND												
	G5-1	ND												
	H4-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material



Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX (N) S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	907
Date received by lab	5/2/12
Lab Job Number:	234923
Lab Sample Number:	879529

Analyzed by	JB
Analysis date	5/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-3	ND												
	H4-3	ND					Prep A	80% intact		5% debris				
	G4-3	ND					Prep B	~50% intact		5% debris				
	F4-3	ND												
	E4-3	ND												
B	G2-1	ND												
	F2-1	ND												
	E2-4	ND												
	C3-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

D = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX-10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	873
Date received by lab	5/2/12
Lab Job Number:	234993
Lab Sample Number:	879530

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K2-1	ND												
	H2-1	ND												
	G2-1	ND												
	F2-1	ND												
	F2-6	ND												
B	K2-6	ND												
	H2-6	ND												
	G2-6	ND												
	F2-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX <sup>(N)</sup> S
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R.
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	905
Date received by lab	5/2/12
Lab Job Number	234993
Lab Sample Number:	879531

Analyzed by	JB
Analysis date	5/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K3-6	ND												
	H3-6	ND					Pump A	60% indirect	5% debris					
	G3-6	ND					Pump B	80% indirect	5% debris					
	F3-6	ND												
	F3-6	ND												
B	G4-6	ND												
	F4-6	ND												
	E4-6	ND												
	C4-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



May 4, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 235070-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Sub - RMP

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 235070-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jeanne Spencer", is written over a horizontal line.

Jeanne Spencer  
President

**RESERVOIRS ENVIRONMENTAL, INC.**  
NWLAP Lab Code 101896-0; TDH: #30-0015

**TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS**

RES Job Number: RES 235070-1  
Client: R & R Environmental  
Client Project Number / P.O.: None Given  
Client Project Description: 3rd West Sub - RMP  
Date Samples Received: May 3, 2012  
Analysis Type: TEM, AHERA  
Turnaround: 24 Hour  
Date Samples Analyzed: May 4, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W-050212 W	EM 879705	0.0900	876	ND	0.0049	BAS	BAS
3W-050212 N	EM 879706	0.0900	876	ND	0.0049	BAS	BAS
3W-050212 E	EM 879707	0.1000	837	ND	0.0046	BAS	BAS
3W-050212 S	EM 879708	0.0900	876	ND	0.0049	BAS	BAS

NA = Not Analyzed  
ND = None Detected  
BAS = Below Analytical Sensitivity  
Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
Filter Diameter = 25 mm  
Effective Filter Area = 385 sq mm

AC  
Digitally signed by  
Anthony Cole  
DN: cn = Anthony Cole,  
c = US, o = Reservoirs  
Environmental, Inc.,  
Date: 2012.05.04  
08:42:19 -0800

**DATA QA**

**RESERVOIRS ENVIRONMENTAL, INC.**  
NVLAP Lab Code 101896-0; TDH: #30-0015

**TABLE II. SUMMARY OF ANALYTICAL DATA**

RES Job Number: RES 235070-1  
Client: R & R Environmental  
Client Project Number / P.O.: None Given  
Client Project Description: 3rd West Sub - RMP  
Date Samples Received: May 3, 2012  
Analysis Type: TEM, AHERA  
Turnaround: 24 Hour  
Date Samples Analyzed: May 4, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-050212 W	EM 879705	ND	0	0	0	0	0	0	0
3W-050212 N	EM 879706	ND	0	0	0	0	0	0	0
3W-050212 E	EM 879707	ND	0	0	0	0	0	0	0
3W-050212 S	EM 879708	ND	0	0	0	0	0	0	0

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 5-4-12  
 Due Time: 8:30



5801 Logan St., Denver, CO 80216 • P: 303 964-1900 • Fax 303 477-4275 • Toll Free 866 REI-ENV

Pager: 203-503-2038

Page 1 of 1

# INVOICE TO: (IF DIFFERENT)

# CONTACT INFORMATION:

Company: <u>R&amp;R Environmental</u>	Company:	Contact: <u>Dave Rostelley</u>	Contact:
Address: <u>47 W 9000S #2</u>	Address:	Phone:	Phone:
<u>Sandy, UT. 84070</u>		Fax:	Fax:
		Cell/pager: <u>801 541-1035</u>	Cell/pager:
Project Number and/or P.O. #:		Final Data Deliverable Email Address: <u>dave@rrenvi.co.com</u>	
Project Description/Location: <u>3rd West Sub - RMP</u>			

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES:													
PLM / PCM / TEM	<u>TEM</u> RUSH (Same Day) <u>X</u> PRIORITY (Next Day) STANDARD (Rush PCM = 2hr, TEM = 6hr.)	PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	ORGANICS - METH	Salmonella: +/-	E.coli O157:H7: +/-	Listeria: +/-	Aerobic Plate Count: +/- or Quantification	E.coli: +/- or Quantification	Coliforms: +/- or Quantification	S.aureus: +/- or Quantification	Y & M: +/- or Quantification	Mold: +/- Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Air = A	Bulk = B								
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm																											
Metal(s) / Dust	RUSH 24 hr. 3-5 Day																										
RCRA 8 / Metals & Welding	RUSH 5 day 10 day																										
Fume Scan / TCLP	RUSH 5 day 10 day																										
Organics	24 hr. 3 day 5 Day																										
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm																											
E.coli O157:H7, Coliforms, S.aureus	24 hr. 2 Day 3-5 Day																										
Salmonella, Listeria, E.coli, APC, Y & M	48 Hr. 3-5 Day																										
Mold	RUSH 24 Hr 48 Hr 3 Day 5 Day																										
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**																											
Special Instructions:																											
Client sample ID number (Sample ID's must be unique)																											
1	3W-050212W		X														876A	5/02/12	870925								
2	3W-050212N																876		06								
3	3W-050212E																837		07								
4	3W-050212S																876		06								
5																											
6																											
7																											
8																											
9																											
10																											

Number of samples received: 4 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days. Failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Fed Ex	Date/Time: <u>5/02/12</u>	Sample Condition: On Ice Sealed Intact
Laboratory Use Only			Temp. (F°) Yes / No Yes / No <u>Yes</u> No
Received By: <u>[Signature]</u>	Date/Time: <u>5/3/12 @ 8:45</u>	Carrier: <u>FedEx</u>	
Results:	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials	
	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials	

Invoice # 7503 8370320  
 7/2011\_version 1



## Attachment I

### Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

#### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

#### Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron

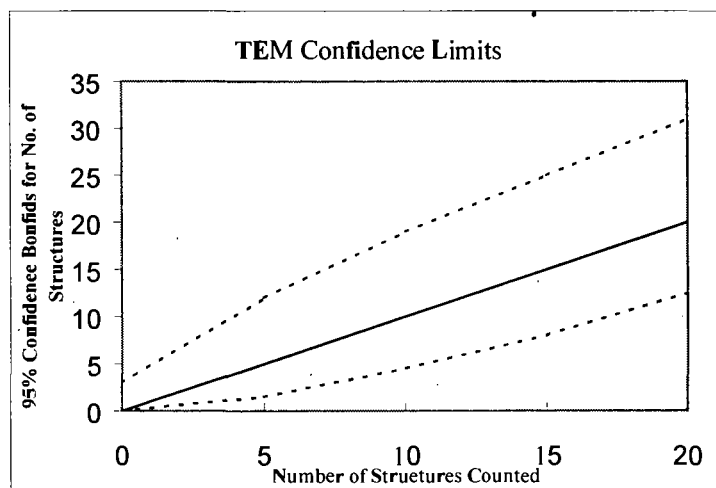
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### TEM Analysts

Jeanne S. Orr  
Nathan DelHierro  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	876
Date received by lab	5/3/12
Lab Job Number:	235070
Lab Sample Number:	879705

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volumes (ml)	
Volumes Applied to secondary filter (ml)	

Analyzed by	<i>[Signature]</i>
Analysis date	5/3/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	H2-3	ND												
	G2-3	ND					Prep A				80X intact sz. debris			
	F2-3	ND					Prep B				5/3/12			
	E2-3	ND												
	C2-3	ND												
B	K5-1	ND												
	H5-1	ND												
	G5-1	ND												
	P5-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.058 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	876
Date received by lab	5/3/12
Lab Job Number:	235070
Lab Sample Number:	879706

Analyzed by	AK
Analysis date	5/3/12
Method (O=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-6	ND												
	E4-6	ND					Prep A 90% intact 5B debris							
	C4-6	ND					Prep B 100% 5/3/12							
	B4-6	ND												
	B4-7	ND												
B	F4-3	ND												
	E4-3	ND												
	C4-3	ND												
	B4-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	30KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, O=Oust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	837
Date received by lab	5/3/12
Lab Job Number:	235070
Lab Sample Number:	879707

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Voltage Applied to secondary filter (ml)	

Analyzed by	JVB
Analysis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G2-6	ND												
	F2-6	ND					Pup A	90% intact		5% debris				
	E2-6	ND					Pup B	80% intact		% debris				
	E3-6	ND												
	C3-6	ND												
B	H2-3	NP												
	G2-3	ND												
	F2-3	ND												
	E2-6	ND												
	C2-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Page 1 of \_\_\_\_\_

Laboratory name:	REI
Instrument	JEOL 100 CX <del>N/S</del>
Voltage (KV)	100 KV
Magnification	<del>20KX</del> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	876
Date received by lab	5/3/12
Lab Job Number	235070
Lab Sample Number:	879708

F-Factor Calculation (Indirect Preps Only):

Fraction of primary (liter used)	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	JB
Analysis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K3-6	ND												
	H3-6	ND												
	G3-6	ND												
	F3-6	ND												
	E3-6	ND												
B	K2-3	ND												
	H2-3	ND												
	G2-3	ND												
	F2-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\Worksheet\in TEM Bench sheet.doc

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening



# **Reservoirs Environmental, Inc.**

May 7, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 235168-1  
Project # / P.O. #: None Given  
Project Description: 3rd West Substation

Eldon Romney  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 235168-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer  
President

**RESERVOIRS ENVIRONMENTAL, INC.**  
NVLAP Lab Code 101896-0; TDH: #30-0015

**TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS**

RES Job Number: RES 235168-1  
Client: R & R Environmental  
Client Project Number / P.O.: None Given  
Client Project Description: 3rd West Substation  
Date Samples Received: May 4, 2012  
Analysis Type: TEM, AHERA  
Turnaround: 6 Hour  
Date Samples Analyzed: May 4, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W0503-N	EM 879894	0.0700	1200	ND	0.0046	BAS	BAS
3W0503-S	EM 879895	0.0700	1200	ND	0.0046	BAS	BAS
3W0503-E	EM 879896	0.0700	1200	ND	0.0046	BAS	BAS
3W0503-W	EM 879897	0.0700	1200	ND	0.0046	BAS	BAS
Blank (Not on Grig. COC)	EM 879898	NA	0	NA	----	----	----
Blank (Not on Grig. COC)	EM 879899	NA	0	NA	----	----	----

NA = Not Analyzed  
ND = None Detected  
BAS = Below Analytical Sensitivity  
Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
Filter Diameter = 25 mm  
Effective Filter Area = 385 sq mm

Digitally signed  
by [Signature]  
DN: cn=, email=, o=, ou=, c=US  
Date: 2012.05.04  
13:38:52 -0500

**DATA QA**



Due Date: 5-5-12  
Due Time: 8:45

RES 235168

**Reservoirs Environmental, Inc.**

5801 Logan St. Denver, CO 80216 • Ph: 303 954-1988 • Fax 303 477-4275 • Toll Free 866 RES-ENV

Page : 203-509-2020

**INVOICE TO: (IF DIFFERENT)****CONTACT INFORMATION:**

Company: <b>R &amp; R Environmental, Inc</b>	Company:	Contact: <b>Duc Rastelley</b>	Contact:
Address: <b>47 W. CEDROS</b>	Address:	Phone: <b>801 541 1055</b>	Phone:
<b>Sandy, Utah 84070</b>		Fax:	Fax:
		Cell/pager:	Cell/pager:
Project Number and/or P.O. #		Final Data Deliverable Email Address:	
Project Description/location: <b>3rd West Substation</b>			

[illegible]

Number of samples received:

(Additional samples shall be listed on attached long form.)

**NOTE:** REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

<b>Relinquished By:</b> <u>[Signature]</u> <b>Date/Time:</b> <u>5/3/12 1730</u>										<b>Sample Condition:</b>		<b>On Ice</b>		<b>Sealed</b>		<b>Intact</b>											
<b>Laboratory Use Only</b>										<b>Temp. (F°)</b>		<b>Yes / No</b>		<b>Yes / No</b>		<b>Yes / No</b>											
<b>Received By:</b> <u>[Signature]</u> <b>Date/Time:</b> <u>5/4/12 @ 245</u> <b>Carrier:</b> <u>Police</u>																											
<b>Results:</b>																											
<b>Contact</b> <u>Dave</u>		<b>Phone</b> <u>[Signature]</u>		<b>Email</b> <u>[Signature]</u>		<b>Fax</b> <u>[Signature]</u>		<b>Date</b> <u>5/5/12</u>		<b>Time</b> <u>9:40a</u>		<b>Initials</b> <u>ML</u>		<b>Contact</b>		<b>Phone</b>		<b>Email</b>		<b>Fax</b>		<b>Date</b>		<b>Time</b>		<b>Initials</b>	
<b>Contact</b>		<b>Phone</b>		<b>Email</b>		<b>Fax</b>		<b>Date</b>		<b>Time</b>		<b>Initials</b>		<b>Contact</b>		<b>Phone</b>		<b>Email</b>		<b>Fax</b>		<b>Date</b>		<b>Time</b>		<b>Initials</b>	

Franklin. 2728 312 6428  
7-2011 version 1

7-2011 version 1

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

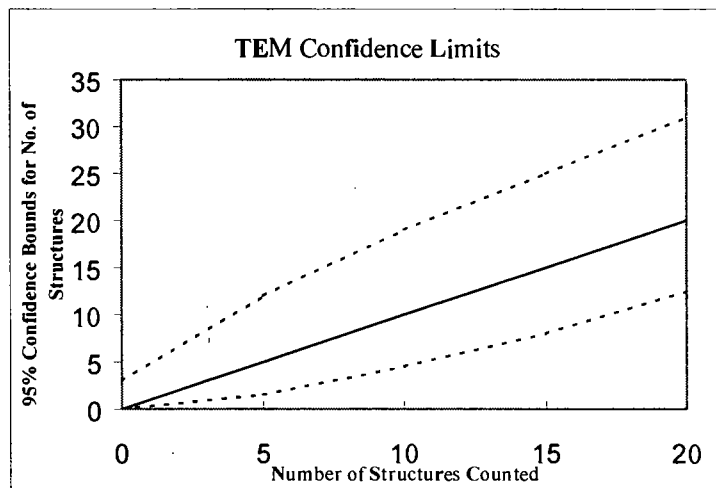
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeanne S. Orr  
Nathan DelHiero  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Resarybls Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N <u>S</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1200
Date received by lab	5/4/12
Lab Job Number:	235168
Lab Sample Number:	879894

Analyzed by	<u>AK</u>
Analysis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-3	ND												
	F3-3	ND					Prep A	60% intact			5-10% debris			
	E3-3	ND					Prep B	~50% intact			5-10% debris			
	C3-3	ND												
B	F4-4	ND												
	E4-1	ND												
	C4-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

**Roservoirs Environmental, Inc.  
TEM Asbestos Structure Count**

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1200
Date received by lab	5/4/12
Lab Job Number:	235168
Lab Sample Number:	879895

Analyzed by	AK
Analysis date	5/4/12
Method (D=Direct, I=Indirect, A=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Prepa Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EOS
A	LS-4	ND												
	KS-4	ND												
	F4-3	ND												
	C3-1	ND												
B	K6-1	ND												
	H6-1	ND												
	F4-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

**Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count**

Laboratory name:	REI
Instrument	JEOL 100 CX N <u>S</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1200
Date received by lab	5/4/12
Lab Job Number	235168
Lab Sample Number:	879896

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	ML
Analysis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibola	C	NAM		Sketch	Photo	EDS
A	H5-3	NM												
	G5-3	NM					Prep A Fibers intact 5/4/12							
	F5-3	NM					Prep B ~ A - longer 5/4/12							
	E5-3	NM												
B	H4-1	NM												
	G4-1	NM												
	F4-1	NM												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Resarvolra Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm <sup>2</sup> )	365
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	RTR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1200
Date received by lab	5/4/12
Lab Job Number:	235168
Lab Sample Number:	879897

Analyzed by	AK
Analysis date	5/4/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volumes (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K4-4	ND												
	H4-4	ND												
	G4-4	ND												
	F4-4	ND												
B	C3-6	ND												
	B3-6	ND												
	C3-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

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NAM = Non-asbestos material

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

- Fiber:** is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
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- Cluster:** is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
- Matrix:** is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm}^2\text{)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1 \text{ L}}{1000 \text{ cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

$$\text{GO} = \text{TEM grid opening}$$



# **Reservoirs Environmental, Inc.**

May 8, 2012

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 235272-1  
Project # / P.O. #: None Given  
Project Description: RMP - 3rd West Substation

Eldon Romney  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 235272-1 Is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer  
President



# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 10189E-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 235272-1  
Client: R & R Environmental  
Client Project Number / P.O.: None Given  
Client Project Description: RMP - 3rd West Substation  
Date Samples Received: May 7, 2012  
Analysis Type: TEM, AHERA  
Turnaround: 24 Hour  
Date Samples Analyzed: May 7, 2012

Client ID Number	Lab ID Number	Area Analyzed (mm <sup>2</sup> )	Air Volume Sampled (L)	Number of Asbestos Structures Detected	Analytical Sensitivity (s/cc)	Asbestos Concentration (s/cc)	Filter Loading (s/mm <sup>2</sup> )
3W0S04-N	EM 880127	0.0800	970	ND	0.0050	BAS	BAS
3W0504-S	EM 880128	0.0800	970	1	0.0050	0.0050	12.5
3W0504-E	EM 880129	0.0800	970	ND	0.0050	BAS	BAS
3W0504-W	EM 880130	0.0800	970	NO	0.0050	BAS	BAS
3W0504-FB	EM 880131	NA	0	NA	----	----	----
3W0504-FB	EM 880132	NA	0	NA	----	----	----

NA = Not Analyzed  
ND = None Detected  
BAS = Below Analytical Sensitivity  
Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
Filter Diameter = 25 mm  
Effective Filter Area = 385 sq mm

Digitally signed  
by [illegible]  
DN: cn = [illegible]  
o = [illegible]  
ou = [illegible]  
email = [illegible]  
Date: 2012.05.08  
12:47:34 -0500

DATA QA

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 235272-1  
Client: R & R Environmental  
Client Project Number / P.O.: None Given  
Client Project Description: RMP - 3rd West Substation  
Date Samples Received: May 7, 2012  
Analysis Type: TEM, AHERA  
Turnaround: 24 Hour  
Date Samples Analyzed: May 7, 2012

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W0504-N	EM 880127	ND	0	0	0	0	0	0	0
3W0504-S	EM 880128	Chrysotile	0	0	0	1	0	0	1
3W0504-E	EM 880129	ND	0	0	0	0	0	0	0
3W0504-W	EM 880130	ND	0	0	0	0	0	0	0
3W0504-FB	EM 880131	NA							0
3W0504-FB	EM 880132	NA							0

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 5/8/12  
 Due Time: 945

RES 235272

**REILAB** *Reservoirs Environmental, Inc.*  
 5831 Logan St. Denver, CO 80216 • Ph: 303 864-1925 • Fax 303 471-4275 • Toll Free 866 RES-ENV  
 Pager: 303-509-2928

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**INVOICE TO: (IF DIFFERENT)**

**CONTACT INFORMATION:**

Company: <u>REIL Environmental, Inc.</u>	Company:	Contact: <u>Dave Postell</u>	Contact:
Address: <u>42 W. 9000 S. #2</u>	Address:	Phone: <u>801 541 1035</u>	Phone:
<u>Sandy, Utah 84070</u>		Fax:	Fax:
		Cell/pager:	Cell/pager:
Project Number and/or P.O. #:	Final Date Deliverable Email Address:		
Project Description/Location: <u>RMP-3rd West Substation</u>			

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS										VALID MATRIX CODES		LAB NOTES:		
PLM / PCM / TEM <input type="checkbox"/> RUSH (Same Day) <input checked="" type="checkbox"/> PRIORITY (Next Day) <input type="checkbox"/> STANDARD (Rush PCM = 2hr, TEM = 6hr.)												Air = A Bulk = B Dust = O Paint = P Soil = S Wipe = W Swab = SW F = Food Drinking Water = DW Waste Water = WW O = Other **ASTM E1792 approved wipe media only**				
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Metal(s) / Dust <input type="checkbox"/> RUSH <input type="checkbox"/> 24 hr. <input type="checkbox"/> 3-5 Day RCRA 8 / Metals & Welding <input type="checkbox"/> RUSH <input type="checkbox"/> 5 day <input type="checkbox"/> 10 day Fume Scan / TCLP <input type="checkbox"/> RUSH <input type="checkbox"/> 5 day <input type="checkbox"/> 10 day Organics <input type="checkbox"/> 24 hr. <input type="checkbox"/> 3 day <input type="checkbox"/> 5 Day																
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm E.coli O157:H7, Coliforms, S.aureus <input type="checkbox"/> 24 hr. <input type="checkbox"/> 2 Day <input type="checkbox"/> 3-5 Day Salmonella, Listeria, E.coli, APC, Y & M <input type="checkbox"/> 48 Hr. <input type="checkbox"/> 3-5 Day Mold <input type="checkbox"/> RUSH <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day																
**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.** Special Instructions:																
Client sample ID number (Sample ID's must be unique)																
1	3W0504-N	PLM	TEM	PCM	DUST	METALS	RCRA	ORGANICS	MICROBIOLOGY	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh:mm a/p	EM Nuttiber (Laboratory Use Only)
2	-S															
3	-E															
4	-W															
5	FB															
6	FB															
7																
8																
9																
10																

Number of samples received: (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Date/Time: <u>5/4/12 1800</u>	Sample Condition: On Ice <input type="checkbox"/> Sealed <input type="checkbox"/> Intact <input checked="" type="checkbox"/>
Laboratory Use Only		Temp. (F°) <u>      </u> Yes / No <input type="checkbox"/> Yes / No <input type="checkbox"/> Yes / No <input type="checkbox"/>
Received By: <u>[Signature]</u>	Date/Time: <u>5/7/12 @ 950</u> Carrier: <u>FEDEX</u>	
Results:	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials
	Contact Phone Email Fax Date Time Initials	Contact Phone Email Fax Date Time Initials

## Attachment I

### Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

#### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

#### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

#### Sizing Conversion

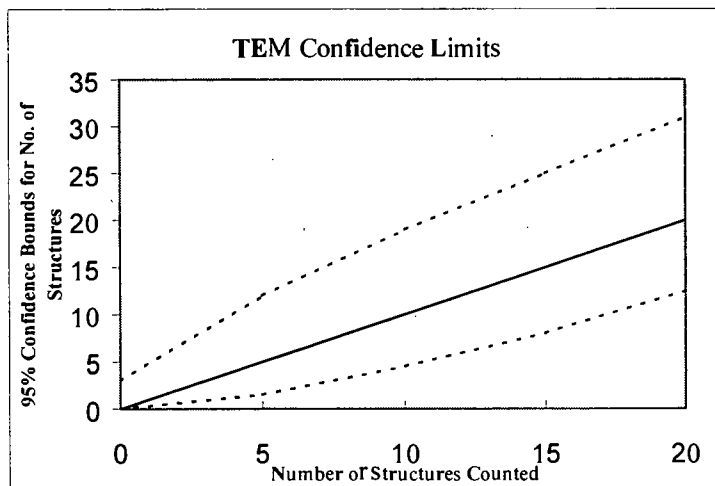
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### TEM Analysts

Jeanne S. Orr  
Nathan DelHierro  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	970
Date received by lab	5/7/12
Lab Job Number:	235272
Lab Sample Number	880127

Analyzed by	TK
Analysis date	5/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, ANERA, ASTM)	AH
Grid storage location	Mon/lt Analyzed
Scope Allantment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	F4-1	ND												
	G4-1	ND												
	C4-1	ND												
	B4-1	ND												
B	G5-1	ND												
	F5-1	ND												
	G5-1	ND												
	G5-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Rosarybls Environmental, Inc.  
TEM Asbestos Structure Count


Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	970
Date received by lab	5/7/12
Lab Job Number	235272
Lab Sample Number	880128

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	TK
Analysis date	5/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	PS-1	ND												
	ES-1	ND					Pres A - 1st intact	52 debris						
	CS-1	ND					Pres B - 80% intact	58 debris			top of 5/7/12			
	BS-1	ND												
B	GH-3	ND												
	PH-3	ND												
	EH-3	MAMP		1	9	3	cm		/					
	CH-3	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	970
Date received by lab	5/7/12
Lab Job Number	235272
Lab Sample Number:	880129

Analyzed by	YK
Analysis date	5/7/12
Method (D=Direcl, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	K3-3	ND												
	H3-3	ND					Inner A 80R - west 52. 1st floor							
	G3-3	ND					Inner B - NA				YK 5/7/12			
	F3-3	ND												
B	G3-6	ND												
	F3-6	ND												
	E3-6	ND												
	C3-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

Reservoir Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N <u>5</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 $\mu$ m
Scale: 1D =	0.056 $\mu$ m
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	270
Date received by lab	5/7/12
Lab Job Numten	235272
Lab Sample Number:	880130

Analyzed by	TK
Analysis date	5/7/12
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	G3-3	ND												
	F3-3	ND												
	E3-3	ND												
	C3-3	ND												
B	G3-4	ND												
	F3-4	ND												
	E3-4	ND												
	C3-4	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material



## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening